

## Overview

- Definitions
- Diagnosis
- Treatment
- Outcomes

## EVALUATING A CHILD WITH FAILURE TO THRIVE

By

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## FTT :

- A sign that describes a problem rather than a diagnosis
- Describes failure to gain wt
  - In more severe cases length and head circumference can be affected
- Underlying cause is insufficient usable nutrition to meet the demands for growth
- Approximately 25% of normal children will have a shift down in their wt curve , then follow a normal curve -- this is not failure to thrive

## Definition

- Failure to Thrive (FTT):
  - Weight below the 5<sup>th</sup> percentile for age and sex
  - Weight for age curve falls across two major percentile lines
  - weight gain is less than expected
- Other definitions exist, but are not superior in predicting problems or long term outcomes

## Types

- Organic (30%)
  - ▣ 2° to a disease process
  - ▣ medical treatment needed for illness
- Non-organic (70%)
  - ▣ under feeding & psychosocial disturbance
  - ▣ requires a change in the child's environment
- Mixed

## Introduction

- Specific infant populations:
  - ▣ Premature/IUGR – wt may be less than 5<sup>th</sup> percentile, but if following the growth curve and normal interval growth then FTT should not be diagnosed

## Etiology

- Inadequate Caloric Intake
  - ▣ Incorrect preparation of formula
  - ▣ Poor feeding habits (ex: too much juice)
  - ▣ Poverty
  - ▣ Mechanical feeding difficulties (reflux, cleft palate, oromotor dysfunction)
  - ▣ Neglect
    - Physicians are strongly encouraged to consider child abuse and neglect in cases of FTT that don't respond to appropriate interventions\*

## More useful classification system is

- ▣ Inadequate caloric intake
- ▣ Inadequate absorption
- ▣ Increased energy requirements

## Etiology

- Increased metabolism
  - ▣ Hyperthyroidism
  - ▣ Chronic infection
  - ▣ Congenital heart disease
  - ▣ Chronic lung disease
- Other considerations
  - ▣ Genetic abnormalities, congenital infections, metabolic disorders (storage diseases, amino acid disorders)

## Etiology

- Inadequate absorption
  - ▣ Celiac disease
  - ▣ Cystic fibrosis
  - ▣ Milk allergy
  - ▣ Vitamin deficiency
  - ▣ Biliary Atresia
  - ▣ Post-Necrotizing enterocolitis

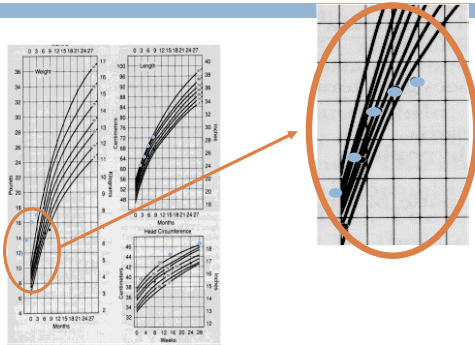
## History

- Dietary
  - Keep a food diary
  - If formula fed, is it being prepared correctly?
  - When, where, with whom does the child eat?
- PMH
  - Illnesses, hospitalizations, reflux, vomiting, stools?
- Social
  - Who lives in the home, family stressors, poverty, drugs?
- Family
  - Medical condition (or FTT) in siblings, mental illness, stature?
- Pregnancy/Birth
  - Substance abuse? postpartum depression?

## Diagnosis

- Accurately plotting growth charts at every visit is recommended\*
- Assess the trends
- H&P more important than labs
  - ▣ Most cases in primary care setting are psychosocial or nonorganic in etiology

## Growth charts of an 8 month old boy with Non-organic FTT



## Changes in growth due to FTT

- early finding
  - ▣ weight
- late findings
  - ▣ length
  - ▣ head circumference

## Physical

- Observe parent-child interactions
  - ▣ Especially during a feeding session
    - How is food or formula prepared?
    - Oral motor or swallowing difficulty?
    - Is adequate time allowed for feeding?
    - Do they cuddle the infant during feeds?
    - Is TV or anything else causing a distraction?

## Physical

- Wt, Ht, HC with the growth chart
  - Systemic exam
  - Signs of neglect or abuse
  - Inappropriate behavior

## Investigations

Rule I  $\Rightarrow$  if Hx & exam is negative  
unlikely to find a cause

Rule II  $\Rightarrow$  NO FISHING

Rule III  $\Rightarrow$  Guided by finding Hx and exam.

Initial work up

A

- \* CBC-d + ESR
- \* Electrolyte profile
- \* Urine analysis
- \* Stool analysis
- \* Bone profile.

B

Specific investigations.

Physical Indications of  
Non-organic FTT

- Lack of age appropriate eye contact, smiling, vocalization, or interest in environment
- Chronic diaper rash
- Impetigo
- Flat occiput
- Poor hygiene
- Bruises
- Scars

Goal is “catch-up” weight gain

- Most cases can be managed with nutrition intervention and/or feeding behavior modification
- General principles:
  - High Calorie Diet
  - Close Follow-up
- Keep a prospective feeding diary-72 hour

## TREATMENT

- 1) Urgent problems e.g. electrolyte , infection, dehydration.
- 2) Nutritional rehabilitation:  
catch up growth requirement.

## Management

- Parental behavior modifications:
  - ▣ May need reassurance to help with their own anxiety
  - ▣ Encourage, but don't force, child to eat
  - ▣ Make meals pleasant, regular times, don't rush
  - ▣ May need to schedule meals every 2-3 hours
  - ▣ Make the child comfortable
  - ▣ Encourage some variety and cover the basic food groups
  - ▣ Snacks between meals

## Management

- Energy intake should be 50% greater than the basal caloric requirement
  - ▣ Concentrate formula, add rice cereal
  - ▣ Add taste pleasing fats to diet (cheese, peanut butter, ice cream)
  - ▣ High calorie milk drinks (PediaSure has 30 cal/oz vs 19 cal per oz in whole milk)
  - ▣ Multivitamin with iron and zinc
  - ▣ Limit fruit juice to 8-12 oz per day

## Management

- For difficult cases:
  - ▣ Multidisciplinary team approach produces better outcomes
    - ▣ Dietitians
    - ▣ Social workers
    - ▣ Occupational therapists
    - ▣ Psychologists
  - ▣ NG tube supplementation may be necessary

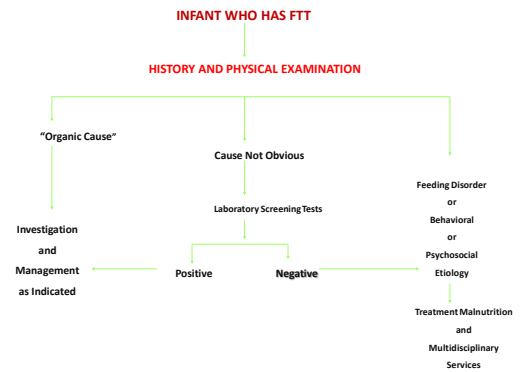
## Indications for hospitalization

- **Rarely necessary**
  - weight below birth weight at 6 wks
  - signs of physical abuse
  - failure of out-patient therapy
  - Hypothermia, bradycardia, hypotension
  - safety is a concern
  - work-up needed for organic causes

## Prognosis of non-organic FTT

- \*Retardation (15 - 67%)
- \*School learning (15 - 67%)
- \*Behavioral disturbance (28 - 48%)

Persistent disorders of growth increased susceptibility to infection



## CONCLUSION

- 1) FTT is a SIGN only
- 2) The most important diagnostic method is : HISTORY & EXAM.
- 3) The important of Nutrition for the brain development in the first 2 years of life.

## Prognosis

- In the 1<sup>st</sup> year of life is ominous
- 1/3 children with psychosocial FTT are developmentally delayed and have social and emotional problems
- Variable prognosis in organic FTT

### Top 6 take home points

4. Psychosocial problems predominate as the causes of FTT in the outpatient setting
5. Treatment goal is to increase energy intake to 1.5 times the basal requirement
6. Earlier intervention may make it easier to break difficult behavior patterns and reduce sequelae from malnutrition

### Top 6 take home points

1. Evaluation of Failure to Thrive involves careful H&P, observation of feeding session, and should not include routine lab or other diagnostic testing
2. Nutritional deprivation in the infant and toddler age group can have permanent effects on growth and brain development
3. Treatment can usually occur by the primary care physician in the outpatient setting.

